3. Tissue to Tissue

Let us assess

1. Question

Which of the following is not a characteristic of RBC?

A. Disc Shape

B. Red colour

C. The nucleus of different shapes

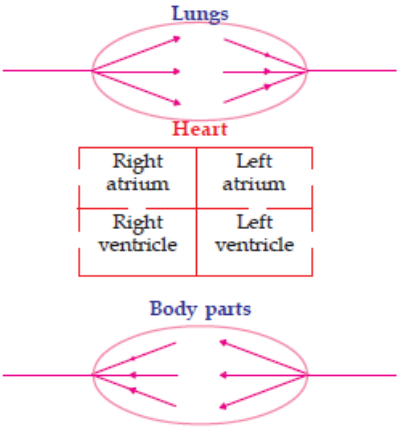
D. Hemoglobin is seen

Answer

The RBCs or Erythrocytes are the cells found in highest number in the blood. They are disc-shaped, biconcave cells. They are red in color, hence the name Red Blood Cells, or Erythrocytes (erythro = red cyte =cell) , due to the presence of pigment haemoglobin, which acts as an oxygen carrier for the blood. The cells lack a nucleus and most other cellular organelles. Thus, the nucleus of different shapes is not seen in RBC.

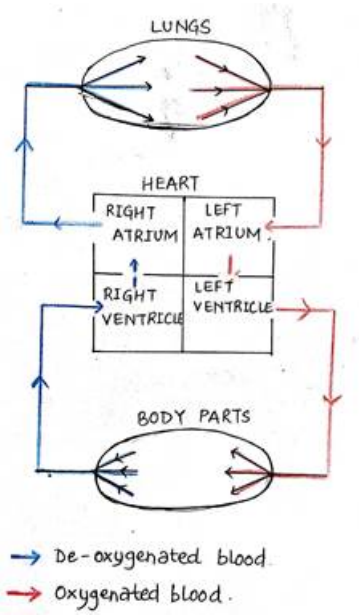
2. Question

Observe the illustration of the lungs, the heart, and body parts.



Copy the illustration and connect the lungs and body parts to the heart using lines. Also, show the route of blood flow.

Answer



The human circulatory system follows double circulation pattern, where the same amount of blood crosses

the heart twice, per cycle, for the transport of oxygen. The two parts of circulation are :

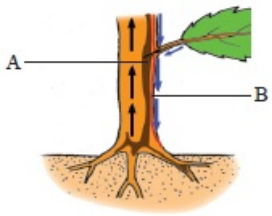
1. Pulmonary circulation: In this, the deoxygenated blood from the right atrium, reaches the lungs with the help of pulmonary arteries. Here, the blood gets oxygenated by the inspired air present in lungs and then moves back to the heart, in the left atrium through pulmonary veins.

2. Systemic circulation: In this, the oxygenated blood from the left atrium, moves to left ventricle, from where it is supplied to all the other body organs via the aorta. In the tissues of the organs, the oxygen gets diffused out, because of difference in pressure, and the deoxygenated blood is carried by the veins, majorly the inferior and superior vena cava to the right ventricle of the heart. This blood is given back to the right atrium, from where it undergoes pulmonary circulation again.

Thus, blood gets oxygenated in the lungs and is then pumped to the whole body by the heart, with the help of blood vessels.

3. Question

Observe the figure showing the transportation of water and minerals plants.



a. Identify the vascular tissues as indicated by A and B.

b. Name the processes that help water absorbed by the roots to reach the leaves.

c. In some plants, the rate of transpiration is very high. Does it affect the availability of water in that locality? Why?

Answer

a. A – Xylem

B – Phloem

b. There are four processes that help the water to reach the tip of leaves from roots. They are :

1. Transpiration: the loss of water from leaves by evaporation.

2. Cohesion: the attractive force between water molecules

3. Adhesion: the capacity of water molecules to stick to the walls of cells

4. Root pressure: the pressure that develops in the root cells because of the water absorbed in them from the surrounding soil.

c. Yes, the high rates of transpiration of plants, affect the water levels of soil in surrounding areas in a negative way. The water movement in plants, from soil to leaves through the xylem, is a one-way process. The water lost by transpiration is not restored back into the soil as quickly as it is lost. Hence, the water levels of the soil go down and the availability of water in that locality decreases.